

ROY ARTERBURY, DELWIN COBB, CAVINS CORPORATION,	§	
	§	
	§	
<i>Plaintiffs,</i>	§	
	§	
v.	§	Case No. 5:16-CV-00183-RWS-RSP
	§	
ODESSA SEPARATOR, INC.,	§	
	§	
<i>Defendant.</i>	§	
	§	
	§	

On August 7, 2018, the Court held a hearing to determine the proper construction of the disputed claim terms in United States Patent No. 5,810,081 (“the ’081 Patent”). The Court has considered the arguments made by the parties at the hearing and in their claim construction briefs. Dkt. Nos. 32, 34, & 35.¹ The Court has also considered the intrinsic evidence and made subsidiary factual findings about the extrinsic evidence. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005); *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). The Court issues this Memorandum and Order on Claim Construction in light of these considerations.

1

TABLE OF CONTENTS

I.	BACKGROUND	3
II.	APPLICABLE LAW	4
III.	CONSTRUCTION OF AGREED TERMS	9
IV.	CONSTRUCTION OF DISPUTED TERMS	9
	A. “means blocking fluid flow upwardly from said annulus”	9
	B. “spiral guide means . . . for directing solid particles received from said fluid inlet passage downwardly in a helical motion”	18
V.	CONCLUSION	26

I. BACKGROUND

The '081 Patent is titled "Wear Structure for Bore Hole Separation Device." The '081 Patent was filed on February 24, 1997 and issued on September 22, 1998. The '081 Patent generally relates to a separation device or desander that is positioned in a bore hole for separation of solid particles from well fluid. '081 Patent at Abstract. The disclosed separation device includes outer and inner concentric members that form an annulus region between the two members. *Id.* A spiral guide is positioned in the annulus region. *Id.* The specification adds that the spiral guide is positioned below a fluid inlet passage in the wall of the outer tubular member, which receives fluids with entrained solid particles (*e.g.*, sand). *Id.* at 2:13–16. The fluid with the entrained solid particles is guided by the spiral guide in a downwardly spiral path, which provides a helical motion to the solid particles. *Id.* at 2:17–19. The helical motion results in a separation of the solid particles from the fluid. *Id.* at 4:41–47. The solid particles settle below the inner tubular member, and the separated fluid flows upwardly through the inner tubular member to a separate location. *Id.*

The specification further states that the disclosed device includes a wear structure in the outer surface of the outer tubular member at a location below the fluid inlet passage in the outer tubular member. *Id.* at 2:20–24. The wear structure extends below the lower end of the inner tubular member. *Id.* The specification adds that the wear structure of the outer tubular member is a reduced wall thickness, which forms a weakened wall portion in the outer tubular member. *Id.* at 2:24–26. The specification states that the swirling action of the sand with relatively abrasive sand particles for prolonged periods of time will cause the weakened wall portion to wear through to form a secondary fluid inlet through the wall to the annulus. *Id.* at 2:26–31. The specification further indicates that this type of wear will happen without failure of the outer tubular member, but will impact the performance enough to indicate that the tool string should be extracted before total failure occurs. *Id.* at 1:66–2:4.

Claim 1 of the '081 Patent is an exemplary claim and recites the following elements
(disputed term in *italics*):

1. In a tool string having a tubular body for removing fluids from a well; a separation device connected to said tubular body adjacent the lower end thereof for separating solid particles from said fluids, said separation device comprising:
an outer tubular member and a concentric inner tubular member defining an annulus between said inner and outer members;
a fluid inlet passage in said outer tubular member extending to said annulus and restricting large solid particles from entering said annulus through said fluid inlet passage;
means blocking fluid flow upwardly from said annulus; and
spiral guide means in said annulus between said tubular members and below said fluid inlet passage *for directing solid particles received from said fluid inlet passage downwardly in a helical motion* for settling of said solid particles below said inner tubular member with the separated fluid flowing upwardly through said inner tubular member to a separate location;
said outer tubular member having a wall and a portion of said wall has a reduced wall thickness which forms a weakened wall portion, said outer tubular member when exposed to relatively abrasive swirling solid particles for a prolonged period of time causing erosion of said weakened wall portion to reduce the thickness of said wall thereat.

II. APPLICABLE LAW

A. Claim Construction

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To determine the meaning of the claims, courts start by considering the intrinsic evidence. *Id.* at 1313; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc’ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the

specification, and the prosecution history. *Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d at 861. The general rule—subject to certain specific exceptions discussed *infra*—is that each claim term is construed according to its ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the patent. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003); *Azure Networks, LLC v. CSR PLC*, 771 F.3d 1336, 1347 (Fed. Cir. 2014) (“There is a heavy presumption that claim terms carry their accustomed meaning in the relevant community at the relevant time.”) (vacated on other grounds).

“The claim construction inquiry. . . begins and ends in all cases with the actual words of the claim.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). “[I]n all aspects of claim construction, ‘the name of the game is the claim.’” *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014) (quoting *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998)). First, a term’s context in the asserted claim can be instructive. *Phillips*, 415 F.3d at 1314. Other asserted or unasserted claims can also aid in determining the claim’s meaning, because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term’s meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id.* at 1314–15.

“[C]laims ‘must be read in view of the specification, of which they are a part.’” *Id.* (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). “[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficosa N. Am. Corp.*,

299 F.3d 1313, 1325 (Fed. Cir. 2002). But, “[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.” *Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *see also Phillips*, 415 F.3d at 1323. “[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

The prosecution history is another tool to supply the proper context for claim construction because, like the specification, the prosecution history provides evidence of how the U.S. Patent and Trademark Office (“PTO”) and the inventor understood the patent. *Phillips*, 415 F.3d at 1317. However, “because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Id.* at 1318; *see also Athletic Alternatives, Inc. v. Prince Mfg.*, 73 F.3d 1573, 1580 (Fed. Cir. 1996) (ambiguous prosecution history may be “unhelpful as an interpretive resource”).

Although extrinsic evidence can also be useful, it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert

testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are entirely unhelpful to a court. *Id.* Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.* The Supreme Court recently explained the role of extrinsic evidence in claim construction:

In some cases, however, the district court will need to look beyond the patent's intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period. *See, e.g., Seymour v. Osborne*, 11 Wall. 516, 546 (1871) (a patent may be "so interspersed with technical terms and terms of art that the testimony of scientific witnesses is indispensable to a correct understanding of its meaning"). In cases where those subsidiary facts are in dispute, courts will need to make subsidiary factual findings about that extrinsic evidence. These are the "evidentiary underpinnings" of claim construction that we discussed in *Markman*, and this subsidiary factfinding must be reviewed for clear error on appeal.

Teva Pharm. USA, Inc. v. Sandoz, Inc., 135 S. Ct. 831, 841 (2015).

B. 35 U.S.C. § 112(6) (pre-AIA)² / § 112(f) (AIA)³

Construing a patent claim that uses functional language invoking § 112(6) involves additional steps. However, § 112(6) does not apply to all functional claim language. Instead, there is a rebuttable presumption that § 112(6) applies when the claim language includes "means" or "step for" terms. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348. If such language does not appear in the claim language, then there is a rebuttable presumption that § 112(6) does not apply. *Id.* The presumption rises or falls according to whether one of ordinary skill in the art would understand the relevant claim, in the context of the entire specification, to denote sufficiently

² The America Invents Act ("AIA").

³ Because the application resulting in the '081 Patent was filed before September 16, 2012, the effective date of the AIA, the Court refers to the pre-AIA version of § 112.

definite structure or acts for performing the function. *Id.* See also *Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1372 (Fed. Cir. 2015).

When § 112(6) applies, it limits the scope of the functional term “to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.” *Williamson*, 792 F.3d at 1347. “The first step in construing such a limitation is a determination of the function of the means-plus-function limitation.” *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001). “[T]he next step is to determine the corresponding structure disclosed in the specification and equivalents thereof.” *Id.* A “structure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *Id.* The focus of the “corresponding structure” inquiry is not merely whether a structure is capable of performing the recited function, but rather whether the corresponding structure is “clearly linked or associated with the [recited] function.” *Id.* The corresponding structure “must include all structure that actually performs the recited function.” *Default Proof Credit Card Sys. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). However, § 112 does not permit “incorporation of structure from the written description beyond that necessary to perform the claimed function.” *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999).

For § 112(6) limitations implemented by a programmed general purpose computer or microprocessor, the corresponding structure described in the patent specification must include an algorithm for performing the function. *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). The corresponding structure is not a general purpose computer but rather

the special purpose computer programmed to perform the disclosed algorithm. *Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008).

III. CONSTRUCTION OF AGREED TERMS

The parties agreed that, except for the two disputed phrases addressed in this Order, all claim terms should be given their plain and ordinary meaning. Dkt. No. 31 at 1.

IV. CONSTRUCTION OF DISPUTED TERMS

The parties' dispute focuses on the meaning and scope of two phrases in the '081 Patent.

A. "means blocking fluid flow upwardly from said annulus"

<u>Disputed Term</u>	<u>Plaintiff's Proposal</u>	<u>Defendant's Proposal</u>
"means blocking fluid flow upwardly from said annulus"	Function: Blocking fluid flow upwardly from the annulus Structure: Shoulder 26 and outer wall of inner tubular member 22, and equivalents.	Indefinite

1. The Parties' Positions

The parties agree that the phrase "means blocking fluid flow upwardly from said annulus" is subject to § 112, ¶ 6. Defendant contends that the phrase is indefinite because there is insufficient structure disclosed in the specification of the '081 Patent. Plaintiff contends that the structure clearly linked to the function is the "annular shoulder" and the tubing connected to that shoulder. (Dkt. No. 32 at 8) (citing '081 Patent at 2:12–18). Plaintiff further contends that mapping the flow through the disclosed separation device supports its construction. (Dkt. No. 32 at 9-10) (citing '081 Patent at 8 3:3–25). Plaintiff argues that the patentee linked the structure by using the same base word ("annular") in describing the structure that provides the function of blocking fluid flow upwardly from the annulus. (Dkt. No. 32 at 10). Finally, Plaintiff argues that U.S. Patent No. 5,314,018 ("the '018 Patent"), which Plaintiff contends is incorporated by reference, confirms the

linkage between the proposed structure and the claimed blocking function. *Id.* (citing '018 Patent at 2:5–8, 4:28–30).

Defendant responds that a “shoulder” denotes a change in diameter but makes no reference to a shoulder acting as a plug or fluid block. (Dkt. No. 34 at 7) (citing *Common Mechanical Engineering Terms*, College of Engineering, University of Wisconsin-Madison)⁴. Regarding the '018 Patent, Defendant argues that it cannot be read into the specification of the '081 Patent. *Id.* Defendant also argues that the enhanced drawing provided by Plaintiff is not available to one skilled in the art, and without it, it would be difficult to determine the structure that performs the recited function. *Id.* at 8. According to Defendant, the perceived need for the enhanced drawing emphasizes the point that the '081 Patent does not provide sufficient structure to support the means-plus-function limitation. *Id.*

Plaintiff replies that the Court should disregard Defendant’s “shoulder” definition. (Dkt. No. 35 at 5). Plaintiff argues that the absence of an express reference to “blocking” in Defendant’s “shoulder” definition does not mean that the shoulder cannot block. *Id.* According to Plaintiff, the specification indicates that the annular shoulder blocks upward flow. *Id.* (citing '081 at 3:7–8). Plaintiff also argues that a person of ordinary skill in the art would understand how fluid moves through the structure shown in Figure 1 without Plaintiff’s modifications. (Dkt. No. 35 at 6) (citing '081 Patent at 2:63–3:1, 3:10–13, 3:23–25). Plaintiff contends that Defendant has provided no evidence that a skilled artisan would view the flow differently through the structure shown in Figure 1. (Dkt. No. 35 at 7). Finally, Plaintiff argues that the '018 Patent is further evidence that the '081 Patent’s analogous annular shoulder (and outer wall of the inner tubular member) blocks

⁴ Defendant did not submit an exhibit related to the referenced definition nor provide a web address related to the referenced definition. In its reply brief, Plaintiff provided the following web address: [http://homepages.cae.wisc.edu/~me231/info/Engineering Glossary.pdf](http://homepages.cae.wisc.edu/~me231/info/Engineering%20Glossary.pdf).

flow upwardly. *Id.*

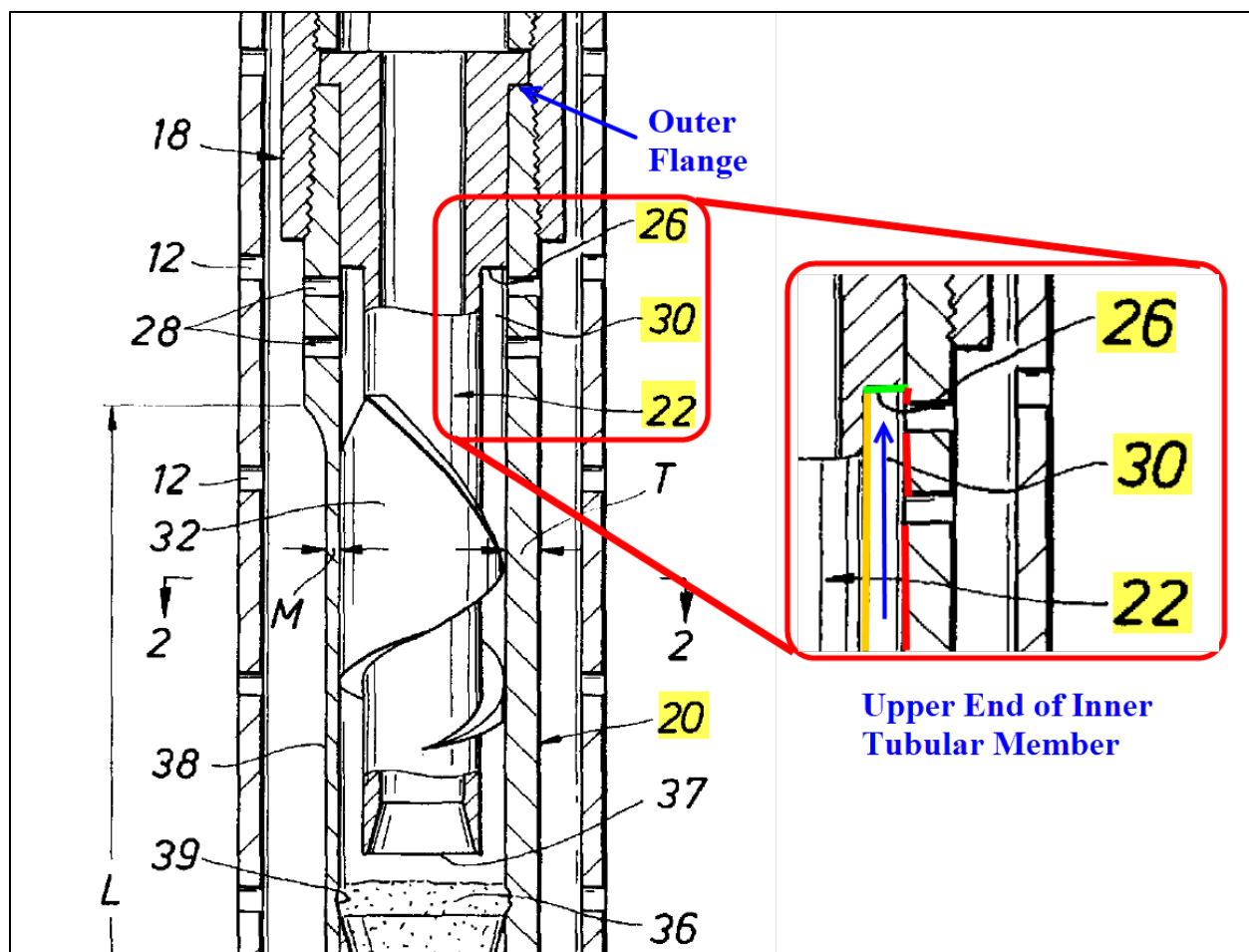
For the following reasons, the Court finds that the phrase “**means blocking fluid flow upwardly from said annulus**” is governed by 35 U.S.C. § 112, ¶ 6, and is not indefinite.

2. Analysis

The phrase “means blocking fluid flow upwardly from said annulus” appears in asserted claim 1 of the '081 Patent. The disputed phrase uses the words “means” and specifies a function, thus the Court presumes that the patentees intended to invoke the statutory mandates for means-plus-function clauses. *York Prods. v. Central Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1574 (Fed. Cir. 1996) (“In determining whether to apply the statutory procedures of section 112, ¶ 6, the use of the word ‘means’ triggers a presumption that the inventor used this term advisedly to invoke the statutory mandates for means-plus-function clauses.”). Furthermore, the parties agree that the term is subject to § 112, ¶ 6. Accordingly, the Court finds that the phrase is governed by 35 U.S.C. § 112, ¶ 6.

“The first step in construing [a means-plus-function] limitation is a determination of the function of the means-plus-function limitation.” *Medtronic*, 248 F.3d at 1311. The Court finds that the function in claim 1 is “blocking fluid from flowing upwardly from the annulus.” The parties agreed with the Court’s findings during the claim construction hearing.

Having determined the limitation’s function, “the next step is to determine the corresponding structure disclosed in the specification and equivalents thereof.” *Medtronic*, 248 F.3d at 1311. The specification indicates that the corresponding structure that performs the recited function of “blocking fluid from flowing upwardly from the annulus” includes shoulder 26 (green outline) of the inner tubular member 22, outer wall (orange outline) of inner tubular member 22, and inner wall (red outline) of outer tubular member 20, shown below:



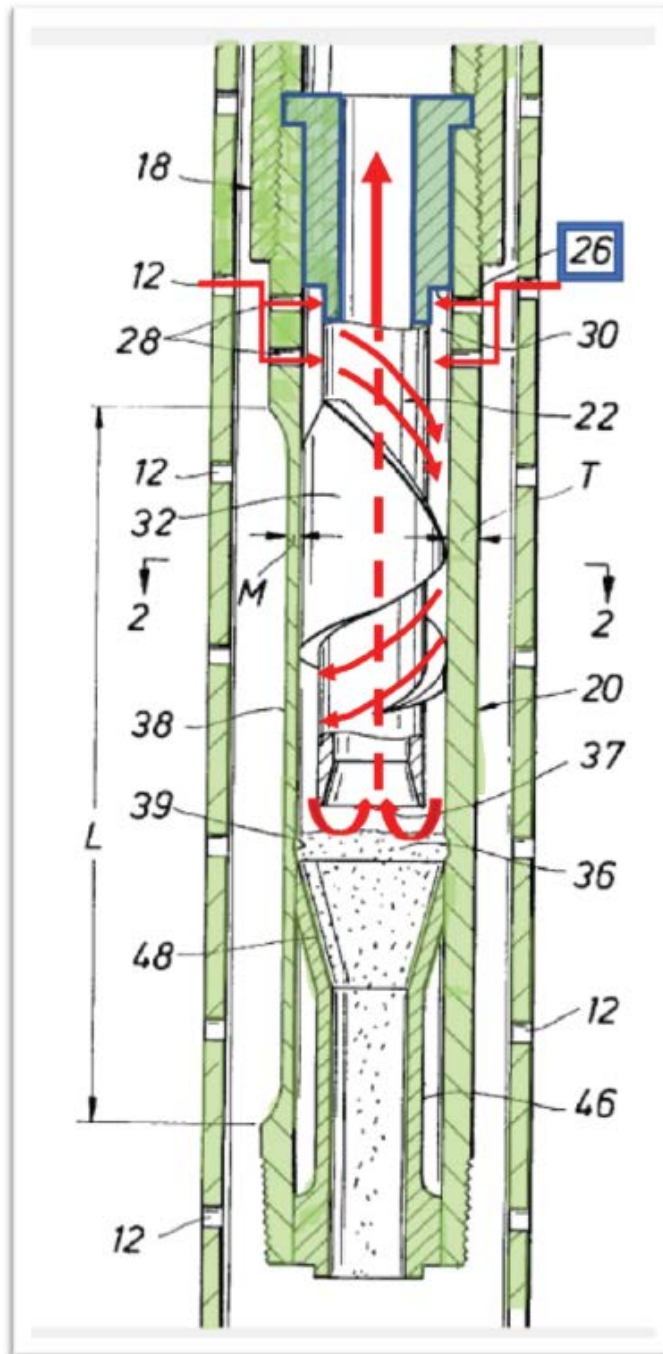
'081 Patent at Figure 1 (annotated). As shown above, and disclosed in the specification, annulus 30 is created by the space between the concentric inner tube 22 and outer tube 20. '081 Patent at 2:12–16 (“The separation device includes inner and outer concentric tubular members providing an annulus in which a spiral guide is positioned below a fluid inlet passage in the wall of the outer tubular member which receives fluids with entrained solid particles such as sand therein for separation.”). The specification adds that this space is referred to as “annular chamber (30).” *Id.* at 3:3–5 (“Openings 28 act as a screen or filter to prevent large solid particles from entering annular chamber 30 formed between outer tubular member 20 and inner tubular member 22.”).

The specification further discloses that, at its upper end, the inner tubular member has an “annular shoulder 26” extending over the annular chamber (30) and contacting the outer tubular

member (20) and inner tubular member (22). *Id.* at 3:5–9 (“The upper end of inner tubular member 22 includes an annular shoulder 26 and a plurality of openings 28 are provided in outer tubular member 20 below shoulder 26.”). As illustrated above, the specification indicates that shoulder 26 (green outline) of the inner tubular member, outer wall (orange outline) of inner tubular member 22, and inner wall (red outline) of outer tubular member 20 is the corresponding structure that performs the recited function of blocking fluid from flowing upwardly (blue arrow) from the annulus.”

Plaintiff provided a modified figure that shows the flow through the disclosed separation device and illustrates how the corresponding structure performs the claimed function.⁵

⁵ Defendant does not dispute that a person of ordinary skill in the art would understand that the disclosed device operates in this manner. (Dkt. No. 34 at 7-8).



Dkt. No. 32 at 9. Referring to the figure, fluid enters the annular chamber through openings (28) that extend through the walls of the outer tubular member. '081 at 3:10–13. A spiral guide (32) is positioned in the annular chamber between the outer tubular member and the concentric inner tubular member. *Id.* at 1:42–45. The specification states that “[t]he spiral guide in the annular

chamber is effective to guide the well fluids containing entrained solid particles downwardly in a spiral path to impart a helical motion to the solid particles so that the solid particles settle downwardly and the separated well fluid is pumped upwardly through the inner tubular member.” *Id.* at 1:46–51; *see also id.* at 3:23–25 (“The solid particles *settle downwardly* in a vortex or swirl chamber 36 shown *below the lower end 37 of the inner tubular member 22.*”) (emphasis added). As shown in the modified figure, shoulder 26 of inner tubular member 22, outer wall of inner tubular member 22, and inner wall of outer tubular member 20 perform the recited function of “blocking fluid from flowing upwardly from the annulus.”

Finally, the specification incorporates by reference the ’018 Patent. *Id.* at 3:19–23 (“As an example of a suitable spiral guide, reference is made to U.S. Pat. No. 5,314,018 dated May 24, 1994, the entire disclosure of which is incorporated by this reference.”). The ’018 Patent explains that the closure at the top of the annular region blocks flow. ’018 Patent at 2:5–8 (“The separation device includes an inner tubular member mounted concentrically within an outer tubular member to define an annular space or annulus *which is blocked or closed at its upper end.*”) (emphasis added). Consistent with the ’081 Patent, the ’018 Patent identifies shoulder 26 of inner tubular member 22, outer wall of inner tubular member 22, and inner wall of outer tubular member 20 as the corresponding structure that performs the function of “blocking fluid from flowing upwardly from the annulus.”

Defendant originally argued that a person of ordinary skill in the art would not see annular shoulder 26 as the structure for blocking fluid flow upwardly. During the claim construction hearing, Defendant informed the Court that it was dropping this argument. Defendant presented a new argument that the term is not indefinite, and that the corresponding structure should include two additional components. Defendant first argued that the Court’s construction should indicate

that shoulder 26 is part of the inner tubular member 22. The Court agrees. The specification states that “[t]he upper end of inner tubular member 22 includes an annular shoulder 26 and a plurality of openings 28 are provided in outer tubular member 20 below shoulder 26.” ’081 Patent at 3:6–9.

Plaintiff argued during the hearing that a person of ordinary skill in the art could flip the shoulder and include it in the outer tubular member 20. Although this may be an equivalent means, it is not the structure disclosed in the specification. *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997) (“The price that must be paid for use of [a means-plus-function claim] is limitation of the claim to the means specified in the written description and equivalents thereof.”). As discussed, it is shoulder 26 of inner tubular member 22 that is clearly linked to the function.

Defendant next argued at the hearing that the corresponding structure should include outer flange 58, identified in Figure 2 of the ’018 Patent. It is important to note that this flange is only discussed and identified in the specification of the ’018 Patent.⁶ Specifically, the specification of the ’018 Patent states “[i]nner tubular member 46 in concentric relation to outer tubular member has an upper large diameter end portion 56 with an outer flange 58 thereon fitting in supporting relation on annular shoulder 52.” ’018 Patent at 4:31–34. The Court does not find that this outer flange is clearly linked to performing the function recited in the claims of the ’081 Patent. Indeed, if Defendant’s argument is taken to its logical conclusion, then everything disclosed in the figures of the ’018 Patent would be required simply because it is included or connected to the disclosed

⁶ The language proposed by Defendant is only found in the specification of the ’018 Patent. The Court takes notice that Defendant is asking the Court to do exactly what it argued in its brief was impermissible (*i.e.*, using the description in the ’018 Patent to construe a disputed phrase in the ’081 Patent). To support its original position that the phrase was indefinite, Defendant argued that “one cannot read into the Patent in Suit’s specification the specification of prior patents to provide structure, material or acts that are not present in the Patent in Suit.” (Dkt. No. 34 at 7).

separation device. This would be improper because § 112, ¶ 6 does not permit “incorporation of structure from the written description beyond that necessary to perform the claimed function.” *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999). Accordingly, the Court rejects this argument. Finally, in reaching its conclusion, the Court has considered the extrinsic evidence submitted by the parties and given it its proper weight in light of the intrinsic evidence.

3. Court’s Construction

In light of the intrinsic evidence, the Court finds that the phrase is governed by 35 U.S.C. § 112, ¶ 6, and construes the phrase “**means blocking fluid flow upwardly from said annulus**” as follows:

Function: Blocking fluid from flowing upwardly from the annulus.

Corresponding Structure: Shoulder 26 of inner tubular member 22, outer wall of inner tubular member 22, and inner wall of outer tubular member 20, and equivalents thereof.

B. “spiral guide means . . . for directing solid particles received from said fluid inlet passage downwardly in a helical motion”

<u>Disputed Term</u>	<u>Plaintiff’s Proposal</u>	<u>Defendant’s Proposal</u>
“spiral guide means . . . for directing solid particles received from said fluid inlet passage downwardly in a helical motion”	<p>Function: Directing solid particles received from the fluid inlet passage downwardly in a helical motion.</p> <p>Structure: spiral guide 32, and equivalents</p> <p>Alternatively: Spiral guide 32; spiral guide 62 of the ’018 Patent, and equivalents</p>	<p>Defendant maintains that structure cannot be incorporated by reference from another patent. If, however, the Court permit structure to be incorporated by reference, then Structure for this element is found in U.S. Patent 5,314,018 (“the ‘018 patent”) that is incorporated by reference into the Specification of U.S. Patent, 5,810,081.</p> <p>The structure is shown as #62 in Figure 3 of the ‘018 patent. The spiral means is to be made of “resilient material” (Col. 7, line 24) and is positioned about the inner tubular member in the annular space between the inner and outer tubular members below the perforations in the outer tubular member to direct and impact a centrifugal motion to the solid particles entering the annular space from the perforations in the outer tubular member.” (Col. 2, lines 15-21.) The upper surface of the spiral guide means defines a downward path of at least 360° around inner tubular member. (Col. 2, lines 22-24.) The lower surface of the spiral guide means forms a helical surface. (Col. 2, lines 27-28.) A discharge opening is formed by the upper and lower helical surfaces at the lower end of the spiral guide. (Col. 2, lines 28-30.)</p>

1. The Parties’ Positions

The parties agree that the phrase “spiral guide means . . . for directing solid particles received from said fluid inlet passage downwardly in a helical motion” is subject to § 112 ¶ 6. Defendant contends that the phrase is indefinite because there is insufficient structure disclosed in the specification of the ’081 Patent. Defendant further contends that the structure cannot be incorporated by reference from another patent. In the alternative, Defendant provides a structure that Plaintiff argues includes unnecessary limitations.

Plaintiff contends that the appropriate structure is the spiral guide described in the specification as “spiral guide 32.” (Dkt. No. 32 at 11). Plaintiff argues that spiral guide (32) includes helical surfaces to force the fluid moving over those surfaces to flow in a helical motion. *Id.* at 12 (citing ’081 Patent at 3:14–18, Figures 1 and 2). Plaintiff further argues that the specification does not strictly limit the spiral guide to one specific arrangement, but instead leaves the exact shape and dimension open-ended. (Dkt. No. 32 at 12) (citing ’081 Patent at 18:20).

Plaintiff also contends that the ’081 Patent incorporates the ’018 Patent, which Plaintiff argues more narrowly describes “spiral guide (62)” relative to “spiral guide 32” in the ’081 Patent. (Dkt. No. 32 at 13). Plaintiff argues that the ’018 Patent’s spiral guide should not be incorporated as limiting, because it is only “an example of a suitable spiral guide,” and not as the only suitable spiral guide. *Id.* (citing ’081 Patent at 3:20–23). Plaintiff further argues that Defendant’s proposed structure imports unnecessary limitations into the structure of the “spiral guide means.” (Dkt. No. 32 at 13) (citing ’018 Patent at 7:23–27).

Defendant responds that “[r]eading any structure from the specification of the ’018 patent into the Patent in Suit to provide structure for the spiral guild [sic] means is impermissible.” (Dkt. No. 34 at 8). Defendant argues that a person having ordinary skill in the art would “look only to the contents of the ’081 Specification to determine the structure for the spiral guide means.” *Id.* Defendant contends that the specification may describe some characteristics of a structure for a spiral guide means, but that it “does [not] equate to furnishing an adequate description of the structure itself.” *Id.* Defendant further contends that the figures add nothing to an understanding of the spiral guide means. *Id.* at 9.

In the alternative, Defendant argues that the ’018 Patent teaches the structure of the spiral guide in its proposed construction. *Id.* (citing ’018 Patent at 2:15–18, 2:21–34). Defendant also

contends that the figures of the '018 Patent provide much greater understanding of the structure of the spiral means in the '018 Patent. (Dkt. No. 34 at 9) (citing '018 Patent at Figure 2-5). Finally, Defendant argues that although the '018 Patent provides sufficient structure, the inclusion of this structure by reference is not permitted. (Dkt. No. 34 at 10).

Plaintiff replies that it has identified sufficient structure for the “spiral guide means” in the '081 Patent. (Dkt. No. 35 at 8) (citing '081 Patent at 3:14–18, Figure 1). Plaintiff argues that one reason that the “spiral guide” is not described in excruciating detail is because it is not the inventive concept captured by the '081 Patent. (Dkt. No. 35 at 8) (citing '081 Patent at 2:7–9). Plaintiff contends that this is contrasted to the '018 Patent where the spiral guide is the inventive concept. (Dkt. No. 35 at 8) (citing '018 Patent at 1:7–11). According to Plaintiff, the '081 Patent discloses a spiral guide and even provides some of its details. (Dkt. No. 35 at 9). In the alternative, Plaintiff argues that the '018 Patent’s spiral guide could provide supporting structure under § 112. *Id.* (citing *Otto Bock HealthCare LP v. Össur HF*, 557 F. App’x 950, 955–56 (Fed. Cir. 2014)). Specifically, Plaintiff’s alternative proposed construction includes “spiral guide 62” of the '018 Patent. (Dkt. No. 35 at 10).

For the following reasons, the Court finds that the phrase **“spiral guide means . . . for directing solid particles received from said fluid inlet passage downwardly in a helical motion”** is governed by 35 U.S.C. § 112, ¶ 6, and is not indefinite.

2. Analysis

The phrase “spiral guide means . . . for directing solid particles received from said fluid inlet passage downwardly in a helical motion” appears in asserted claim 1 of the '081 Patent. The disputed phrase uses the words “means” and specifies a function, thus the Court presumes that the patentees intended to invoke the statutory mandates for means-plus-function clauses. *York Prods.*

v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1574 (Fed. Cir. 1996) (“In determining whether to apply the statutory procedures of section 112, ¶ 6, the use of the word ‘means’ triggers a presumption that the inventor used this term advisedly to invoke the statutory mandates for means-plus-function clauses.”). Furthermore, the parties agree that the term is subject to § 112, ¶ 6. Accordingly, the Court finds that the phrase is governed by 35 U.S.C. § 112, ¶ 6.

“The first step in construing [a means-plus-function] limitation is a determination of the function of the means-plus-function limitation.” *Medtronic*, 248 F.3d at 1311. The Court finds that the function in claim 1 is “directing solid particles received from the fluid inlet passage downwardly in a helical motion.” The parties agreed with the Court’s findings during the claim construction hearing.

Having determined the limitation’s function, “the next step is to determine the corresponding structure disclosed in the specification and equivalents thereof.” *Medtronic*, 248 F.3d at 1311. The specification indicates that the corresponding structure that performs the function of “directing solid particles received from the fluid inlet passage downwardly in a helical motion” includes spiral guide 32 having an upper helical surface and a lower helical surface defining a spiral path extending in a generally downwardly direction. Specifically, the specification states that “[m]ounted in annular chamber 30 between inner tubular member 22 and outer tubular member 20 is a spiral guide generally indicated at 32 and having upper and lower helical surfaces thereon to provide a helical motion to the fluid and entrained solid particles therein.” ’081 Patent at 3:14–18. Figure 1 of the ’081 Patent illustrates the structure of the spiral guide:

defines a spiral path which extends downwardly” and “the lower surface of the spiral guide also forms a helical surface.” ’018 Patent at 2:21–28. Thus, the specification of the ’018 indicates that the corresponding structure that is clearly linked with the recited function is spiral guide 32 having an upper helical surface and a lower helical surface defining a spiral path extending in a generally downwardly direction.

Turning to Defendant’s proposals, Defendant first contends that “[r]eading any structure from the specification of the ’018 patent into the Patent in Suit to provide structure for the spiral guide means is impermissible.” (Dkt. No. 34 at 8). The Court disagrees. To support its argument, Defendant relies on *Atmel Corp. v. Info. Storage Devices*, 198 F.3d 1374 (Fed. Cir. 1999) and *Pressure Prods. Med. Supplies, Inc. v. Greatbatch Ltd.*, 599 F.3d 1308 (Fed. Cir. 2010). Defendant’s reliance on *Pressure Prods.* is misplaced. In that case, the trial court incorrectly included supporting structure from a “laundry list” of prior art. *Pressure Prods.*, 599 F.3d at 1317. Therefore, *Pressure Prods.* stands for the proposition that simply listing prior art does not open the door for identifying supporting structure in the listed prior art. *See id.* (“Trial courts cannot look to the prior art, *identified by nothing more than its title and citation in a patent*, to provide corresponding structure for a means-plus-function limitation *Simply mentioning prior art references* in a patent does not suffice as a specification description to give the patentee outright claim to all of the structures disclosed in those references.”) (emphasis added). As discussed above, the ’081 Patent specifically references the structure disclosed in the patent incorporated by reference.

Regarding *Atmel*, the Federal Circuit in *Otto Bock* stated that “*Atmel* only foreclosed the use of the content of a non-patent publication incorporated by reference to add structure to a means-plus-function claim. *Atmel* did not purport to include U.S. patent applications.” *Otto Bock*

Healthcare LP v. Össur HF & Össur Ams., Inc., 557 Fed. Appx. 950, 955 (Fed. Cir. 2014) (internal citations omitted). Indeed, Defendant’s position is contrary to 37 CFR § 1.57(d), which expressly permits “essential material” for a patent specification to be incorporated by reference—such as “the structure, material, or acts that correspond to a claimed means or step for performing a specified function as required by 35 U.S.C. 112(f).” 37 CFR § 1.57(d)(3), *see also Otto Bock*, 557 Fed. Appx. at 955-956 (“37 C.F.R. 1.57(d) specifically envisions using a U.S. patent application incorporated by reference to define structure for the purpose of 35 U.S.C. § 112, ¶ 6.”). Thus, consistent with 37 C.F.R. § 1.57(d), a patent publication incorporated by reference can provide supporting structure for means-plus-function claiming.

In the alternative, Defendant proposes a structure that includes unnecessary and unwarranted limitations in the proposed structure. *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001) (stating that the focus of the “corresponding structure” inquiry is not merely whether a structure is capable of performing the recited function, but rather whether the corresponding structure is “clearly linked or associated with the [recited] function.”). For, example, the specification of the ’081 Patent does not indicate that the “spiral guide” must be made of “resilient material.” In fact, the specification of the ’081 Patent is silent about the material type.

Likewise, the specification of the ’018 Patent does not restrict the “spiral guide” to “resilient material,” but instead contemplates that the spiral guide may be either “resilient” or “rigid.” ’018 Patent at 7:23–27 (“It *may be desirable*, under certain conditions, to have the spiral guide formed of a resilient material *instead of a rigid material* to permit the orifice to change its shape in the event of plugging”) (emphasis added). Thus, the “spiral guide means” should not be limited to one specific material type because either material can perform the recited function.

TI Grp. Auto. Sys. (North Am.), Inc. v. VDO N. Am., L.L.C., 375 F.3d 1126, 1137 (Fed. Cir. 2004) (“[W]hen multiple embodiments in the specification correspond to the claimed function, proper application of § 112, [paragraph 6] reads the claim element to embrace each of those embodiments.”) (citation omitted).

Nor must the upper surface of the “spiral guide means” be required to define a downward path of at least 360 degrees and include a “discharge opening,” as Defendant contends. During the claim construction hearing, Defendant also argued that the construction should limit the spiral guide to one fin, and that there must be a decrease in cross sectional area between the upper and lower ends.⁷ The Court rejects Defendant’s arguments because the specification of the ’081 Patent states that the spiral guide “may be of various shapes and dimensions to provide a spin or helical motion” to the fluids moving through the tool string. ’081 Patent at 18:20. More importantly, the specification of the ’081 Patent only requires the spiral guide to have an upper helical surface and a lower helical surface defining a spiral path extending in a generally downwardly direction. There is no discussion of a single fin or the other limitations included in Defendant’s construction. To be clear, the ’081 Patent provides sufficient structure, and the ’018 Patent provides one example that is consistent with the disclosure of the ’081 Patent.

Finally, as Plaintiff correctly points out, spiral guide 32 is not the stated improvement of the ’081 Patent. Instead, the stated improvement is the integration of the weakened wall portion of the tube string. ’081 Patent at 2:7–9 (“The present invention is particularly directed *to a wear structure* for a separation device positioned on the lower end of a downhole tubing string”) (emphasis added). In contrast, the ’018 Patent indicates that the stated improvement is the spiral

⁷ To support its position for these new arguments, Defendant cited to the ’018 Patent at 1:50–56, 2:43–45.

guide in the tubing string. '018 Patent at 1:7–11 (“This invention relates to an apparatus method for separating solid particles from liquids . . . in which *the separator imparts a helical motion to the fluid* containing the solid particles and liquids”) (emphasis added). Thus, a person of ordinary skill in the art would understand that the corresponding structure clearly linked to performing the recited function in the '081 Patent does not require all of the limitations disclosed in the '018 Patent. Instead, the corresponding structure identified above in the '081 Patent is the corresponding structure necessary to perform the recited function. *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999) (holding that § 112, ¶ 6 does not permit “incorporation of structure from the written description beyond that necessary to perform the claimed function.”). Accordingly, the Court rejects Defendant’s alternative construction.

3. Court’s Construction

In light of the intrinsic evidence, the Court finds that the phrase is governed by 35 U.S.C. § 112, ¶ 6, and construes the phrase “**spiral guide means . . . for directing solid particles received from said fluid inlet passage downwardly in a helical motion**” as follows:

Function: Directing solid particles received from the fluid inlet passage downwardly in a helical motion.

Corresponding Structure: Spiral guide 32 having an upper helical surface and a lower helical surface defining a spiral path extending in a generally downwardly direction, and equivalents thereof.

V. CONCLUSION

The Court adopts the constructions above for the disputed and agreed terms of the Asserted Patent. Furthermore, the parties should ensure that all testimony relating to the terms addressed in this Order is constrained by the Court’s reasoning. However, in the presence of the jury the parties should not expressly or implicitly refer to each other’s claim construction positions and should not

expressly refer to any portion of this Order that is not an actual construction adopted by the Court. The references to the claim construction process should be limited to informing the jury of the constructions adopted by the Court.

SIGNED this 23rd day of August, 2018.



ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE